[said] the operator-controlled object and [said] the terrain objects being defined within a three-dimensional virtual space, the virtual generation apparatus comprising:

shape data memory which stores shape data defining shapes of the terrain objects present in [said] the virtual space;

position specification means which specifies position of the operator-controlled object with respect to the terrain objects;

overlap determination means which determines, on the basis of [said] the shape data and [said] the position data, whether or not a terrain object is located between [said] the viewpoint and [said] the operator-controlled object; and

image generation means which generates image data for displaying on a monitor screen the operator-controlled object and the terrain objects viewed from the viewpoint, wherein a terrain object is processed so as to be displayed as a show-through image generated by displaying pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern through which the operator-controlled object can be viewed in the event that [said] the overlap determination means determines that [said] the operator-controlled object is located behind [intervened by] the terrain object when viewed from the [current] viewpoint, and wherein the terrain object is processed so as to be [rendered] displayed as a non-show-through image in the event that both [of said] the operator-controlled object and the terrain object are viewed without a prescribed overlapping state from the [current] viewpoint.

5. (Twice Amended) A virtual image generation apparatus which generates images observed from a viewpoint to be displayed on a monitor, [said] the images including an operator-controlled object moving relative to virtual terrain objects, [said] the operator-controlled object and [said] the terrain objects being defined within a three-dimensional virtual space, comprising:

shape data memory which stores shape data defining shapes of [said] the terrain objects present in [said] the virtual space;

position specification means which specifies position of [said] the operator-controlled object with respect to [said] the terrain objects;

overlap determination means which determines, on the basis of [said] the shape data and [said] the position data, whether or not a terrain object is located between [said] the viewpoint and [said] the operator-controlled object; and

image generation means which generates image data for displaying on [said] the monitor [said] the operator-controlled object and [said] the terrain objects viewed from [said] the viewpoint, wherein a terrain object is processed so as to be displayed as a show-through image generated by displaying pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern through which the operator-controlled object can be viewed in the event that [said] the overlap determination means determines that [said] the operator-controlled object is located behind [intervened by] the terrain object when viewed from the [current] viewpoint;

wherein [said] the overlap determination means computes a first vector which extends in a direction in which [said] the operator-controlled object is observed

-3-

from [said] the viewpoint and a second vector which extends from [said] the terrain object towards [said] the operator-controlled object, computes the angle formed by the obtained first vector and second vector, and, in the event that this angle falls within a prescribed relationship with regard to a prescribed reference angle, determines that the operator controlled object is located behind [intervened by] the terrain object when viewed from the [current] viewpoint.

2. (Twice Amended) A virtual image generation apparatus as defined in [Claim] claim 2, wherein [said] the overlap determination means compares a displacement from a prescribed ground point for a first reference point specified for [said] the operator-controlled object with a displacement from a ground point for a second reference point specified for [said] the terrain object, and in the event that the displacement for [said] the first reference point is smaller than [that] the displacement for [said] the second reference point, decides that the operator-controlled object is located behind [intervened by] the terrain object when viewed from the [current] viewpoint.

6. (Twice Amended) A virtual image generation apparatus as defined in [Claim] claim 5, wherein [said] the overlap determination means makes a determination that the operator-controlled object is located behind [intervened by] the object when viewed from the [current] viewpoint in the event that the angle falls within the prescribed relationship with regard to [said] the reference angle as well as in the event that a displacement of the operator-controlled object is smaller than a displacement of the terrain object, wherein [said] the displacement of the operator-controlled object is the displacement from a prescribed ground point for a first reference point specified for [said] the operator-controlled object and [said] the displacement of the terrain object is the displacement from a ground point for a second reference point specified for the terrain object.

7. (Twice Amended) A virtual image generation apparatus as defined in [Claim 6] claim 2, wherein [said] the pattern is a mesh form with an alternating sequence of pixels for displaying [said] the terrain object and pixels for displaying [said] the operator-controlled object.

15. (Twice Amended) A game device as defined by claim 12, wherein [said] the overlap determiner:

compares a displacement from a ground point for a first reference point for [said] the player-controlled object with a displacement from [said] the ground point for a second reference point for [said] the terrain object; and

determines whether [or not] an overlap state, in which the player-controlled object is [intervened by] located behind the terrain object when viewed from the viewpoint, exists in accordance with whether [said] the displacement for [said] the first reference point is smaller than [said] the displacement for [said] the second reference point.

16. (Twice Amended) A game device as defined by claim 14, wherein [said] the overlap determiner:

compares a displacement from a ground point for a first reference point for [said] the player-controlled object with a displacement from [said] the ground point for a second reference point for [said] the terrain object; and

determines whether [or not] an overlap state, in which the player-controlled object is [intervened by] located behind the terrain object when viewed from the viewpoint, exists in accordance with whether [said angle falls within a prescribed relationship with a reference angle and said] the displacement for [said] the first reference point is smaller than [said] the displacement for [said] the second reference point.

8.   (Twice Amended) A virtual image generation method which generates images observed from a viewpoint to be displayed on a monitor, [said] the images including an operator-controlled object moving relative to virtual terrain objects, [said] the operator-controlled object and [said] the terrain objects being defined within a three-dimensional virtual space, [said] the method comprising the steps of:

storing shape data defining shapes of [said] the terrain objects;

computing the position of the operator-controlled object with respect to [said] the terrain objects;

determining, on the basis of the shape data and the position data, for [said] the operator-controlled object, whether a terrain object is located between the viewpoint and [said] the operator-controlled object in an overlapping state when viewed from the viewpoint; and

generating image data for displaying on the monitor the operator-controlled object and the terrain objects viewed from the viewpoint, in which a terrain object in an overlapping state is processed so as to be [rendered] displayed as a show-through image generated by displaying pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern through which the operator controlled object can be viewed in the event that the terrain object is located between the viewpoint and [said] the operator-controlled object in an overlapping state when viewed from the viewpoint, and in which a terrain object disposed in a state other than [said] the overlapping state is [rendered] displayed as a non-show-through image.

9.   (Twice Amended) An information storing medium for use with a virtual image generation apparatus which generates images observed from a viewpoint to be displayed on a monitor, [said] the images including an operator-controlled object moving relative to virtual terrain objects, [said] the operator-controlled object and [said] the terrain objects being defined within a three-dimensional virtual space, [said] the information storing medium storing a program which executes the steps of:

supplying shape data defining shapes of objects to be displayed;

computing position of the operator-controlled object with respect to the terrain objects;

determining, on the basis of the shape data relating to the terrain objects present in [said] the virtual space and the position data, for [said] the operator-controlled object, whether any of the terrain objects is located between the viewpoint and [said] the operator-controlled object in an overlapping state when viewed from the viewpoint; and

generating image data for displaying on the monitor the operator-controlled object and the terrain objects viewed from the viewpoint, in which any terrain object in an overlapping state is processed so as to be [rendered] displayed as a show-through image generated by displaying pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern through which the operator controlled object can be viewed in the event that the terrain object is located between the [current] viewpoint and [said] the operator-controlled object in an overlapping state when viewed from the viewpoint, and in which any of the terrain objects disposed in a state other than [said] the overlapping state is [rendered] displayed as a non-show-through image.

13.   (Twice Amended) A game device which generates images observed from a viewpoint to be displayed on a monitor, [said] the images including a player-controlled object moving relative to virtual terrain objects, [said] the player-controlled object and [said] the terrain objects being defined within a three-dimensional virtual space, [said] the game device comprising:

an input means with which a game player operates a computer game;

shape data memory which stores shape data defining shapes of the terrain objects present in [said] the virtual space;

a position data specifier which specifies a current position for the player-controlled object with respect to the terrain objects;

overlap determination means which determines, on the basis of [said] the shape data and [said] the position data, whether or not a terrain object is located between the viewpoint and the player-controlled object; and

an image generator which generates image data for displaying on the monitor screen the player-controlled object and the terrain objects viewed from the viewpoint wherein a terrain object is processed so as to be [rendered] displayed as a show-through image generated by displaying pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern through which the player-controlled object is viewed in the event that [said] the overlap determiner determines that [said] the player-controlled object is located behind [intervened by] the terrain object in an overlapping state when viewed from the viewpoint, and wherein a terrain object is [rendered] displayed without such show-through image effect in the

event that [said] the player-controlled object and [said] the terrain object are disposed in a state other than the overlapping state.

14.   (Twice Amended) A game device which generates images observed from a viewpoint to be displayed on a monitor, [said] the images including a player-controlled object moving relative to virtual terrain objects, [said] the player-controlled object and [said] the terrain objects being defined within a three-dimensional virtual space, [said] the game device comprising:

an input means with which a game player operates a computer game;

shape data memory which stores shape data defining shapes of the terrain objects present in [said] the virtual space;

a position data specifier which specifies a current position for the player-controlled object with respect to the terrain objects;

overlap determination means which determines, on the basis of [said] the shape data and [said] the position data, whether [or not] a terrain object is located between the viewpoint and the player-controlled object; and

an image generator which generates image data for displaying on the monitor screen the player-controlled object and the terrain objects viewed from the viewpoint wherein a terrain object is processed so as to be [rendered] displayed as a show-through image through which the player-controlled object is viewed in the event that [said] the overlap determiner determines that [said] the player-controlled object is located behind [intervened by] the terrain object in an overlapping state when viewed from the viewpoint.

-9-

25.　(Amended) A computer system comprising a graphic image processor wherein various objects are defined in a three-dimensional virtual space and programs are executed in response to an operator's instruction so that a<u>n</u> operator-controlled object moves against a terrain composed of terrain objects defined in the three-dimensional virtual space and images of the operator controlled object and the terrain objects viewed from [a] <u>at least one</u> viewpoint are generated for displaying on a monitor, the computer system comprising:

an input means which is manually controlled by an operator, the image of [said] <u>the</u> operator-controlled object moves in response to the operators' control with the input means;

shape data memory stored with shape data for objects; and

processing means for [rendering] <u>generating</u> images of the operator-controlled object and the terrain objects for displaying on the monitor,

wherein the processing means determines positions of the operator-controlled object with respect to the terrain objects and, in the event that a terrain object is located [intervening] <u>between the viewpoint and</u> the operator-controlled object in the three-dimensional virtual space when viewed from the viewpoint, [renders] <u>generates</u> a portion of the terrain object overlapping with the operator-controlled object with a show-through image effect <u>generated by displaying pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern</u>.

28.   (Amended) A computer system defining various objects in a three-dimensional virtual space and executing programs that respond to an operator's instruction so that a operator-controlled object moves against a terrain composed of terrain objects defined in the three-dimensional virtual space and images of such objects viewed from a viewpoint are generated for displaying on a monitor, the computer system comprising:

an input means which is manually controlled by an operator, the image of [said] the operator-controlled object moving in response to the operators' control with the input means; and

processing means for [rendering] generating images of the operator-controlled object and the terrain objects for displaying on a monitor,

wherein [said] the processing means determines positions of the operator-controlled object with respect to the terrain objects and, in the event that a terrain object is located [intervening] between the viewpoint and the operator-controlled object in the three-dimensional virtual space when viewed from the viewpoint, [renders] generates a portion of the terrain object overlapping with the operator-controlled object with a show-through image effect generated by displaying pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern.

-12-

29.   (Amended) A method of [rendering] generating images on a computer system, the computer system defining objects in a three-dimensional virtual space, [said] the objects including an operator-controlled object and a terrain composed of terrain objects, and wherein [said] the computer system [renders] generates images of [said] the objects viewed from a viewpoint for displaying on a monitor, [said] the method comprising the steps of:

receiving signals from an input means controlled by an operator;

processing the signals so that operator-controlled object moves relative to their terrain objects in response to [said] the signals;

determining the positions of the operator controlled object with respect to the terrain;

[rendering] generating images of the operator-controlled object and the terrain objects viewed from the viewpoint for displaying on the monitor;

wherein, in the event that a terrain object is located [intervening] between the viewpoint and the operator-controlled object in the three dimensional virtual space when viewed from the viewpoint, a portion of the terrain object overlapping with the operator controlled object is [rendered] generated with a show-through effect generated by displaying pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

-13-

30. (Amended) An information storing medium for use with a computer system defining objects in a three-dimensional virtual space, [said] the objects including an operator-controlled object and a terrain composed of terrain objects, and wherein [said] the computer system [renders] generates images of [said] the objects viewed from a viewpoint for displaying on a monitor, [said] the medium storing a program which executes the steps of:

receiving signals from an input means controlled by an operator;

processing the signals so that operator-controlled object moves relative to their terrain objects in response to [said] the signals;

determining positions of the operator controlled object with respect to the terrain objects;

[rendering] generating images of the operator-controlled object and the terrain objects viewed from the viewpoint for displaying on the monitor;

wherein, in the event that a terrain object is located [intervening] between the viewpoint and the operator-controlled object in the three dimensional virtual space when viewed from the viewpoint, a portion of the terrain object overlapping with the operator controlled object is [rendered] generated with a show-through effect generated by displaying pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern.

Please add new claims 31-35, as follows:

--31.   (New) A virtual image generation apparatus comprising:

shape data memory which stores data defining shapes of a plurality of terrain objects within a three-dimensional virtual space;

position specification means which specifies a position of an operator-controlled object within the virtual space;

overlap determination means which determines whether a terrain object is located between a viewpoint and the operator-controlled object;

first image generation means which generates image data for the operator-controlled object and the plurality of terrain objects as viewed from the viewpoint; and

second image generation means which generates image data for the operator-controlled object and the terrain objects comprising pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern if the overlap determination means determines that the operator-controlled object is located behind the terrain object when viewed from the viewpoint.

32.   (New) A virtual image generation method comprising the steps of:

storing data defining shapes of a plurality of terrain objects within a three-dimensional virtual space;

computing the position of an operator-controlled object within the virtual space;

determining whether a terrain object is located between a viewpoint and the operator-controlled object;

generating image data for the operator-controlled object and the plurality of terrain objects as viewed from the viewpoint;

generating image data for the operator-controlled object and the terrain object comprising pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern if the operator-controlled object is located behind the terrain object when viewed from the viewpoint.

33.   (New) An information storing medium storing a program which executes the steps of:

storing data defining shapes of a plurality of terrain objects within a three-dimensional virtual space;

computing the position of an operator-controlled object within the virtual space;

determining whether a terrain object is located between a viewpoint and the operator-controlled object; and

generating image data for the operator-controlled object and the terrain objects as viewed from the viewpoint

generating image data for the operator-controlled object and the terrain object comprising pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern if the operator-controlled object is located behind the terrain object when viewed from the viewpoint.

-17-

34.   (New) A computer system comprising:

an input means for operating an operator-controlled object;

first generating means for generating image data of the operator-controlled object and a plurality of terrain objects from a plurality of viewpoints,

processing means for determining the position of the operator-controlled object with respect to the plurality of terrain objects as viewed from a viewpoint; and,

second generating means for generating image data for the operator-controlled object and the terrain objects comprising pixels indicative of the terrain object and pixels indicative of the operator-controlled object in a prescribed pattern if the operator-controlled object is located behind a terrain object when viewed from the viewpoint.

-18-

35.   (New) A game device comprising:

a controller for operating a player-controlled object;

a shape data memory which stores data defining shapes of a plurality of terrain objects present in a three-dimensional virtual space;

a position data specifier which specifies a current position for the player-controlled object within the virtual space;

an overlap determination processor which determines whether a terrain object is located between a viewpoint and the player-controlled object; and

an image generator which generates image data for the player-controlled object and the terrain objects as viewed from the viewpoint and image data for the player-controlled object and the terrain object comprising pixels indicative of the terrain object and pixels indicative of the player-controlled object in a prescribed pattern if the overlap determination processor determines that the player-controlled object is located behind the terrain object when viewed from the viewpoint.--